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Irrigated Crop Recommendations for Alberta 1989-1990

This publication provides information on crop varieties for production under irrigation. Recommended varieties are listed for each crop, along with seeding rates and general fertilizer recommendations. With this information farmers can determine the variety and seeding rate for each irrigated crop.

Fertilizer recommendations

The general fertilizer recommendations are given for both nitrogen (N) and phosphorus (P_2O_5). The lower value for applied nitrogen should be used when soil test nitrogen is high or when optimum irrigation cannot be maintained. The highest value for applied nitrogen should be used when soil test nitrogen is low. For greatest nitrogen efficiency, nitrogen fertilizer can be deep banded rather than broadcast and incorporated.

When soil test levels of phosphorus are high, only a small starter application of P_2O_5 is required. The higher value for applied phosphorus should be used when soil test phosphorus is low. Phosphorus is most effective for the majority of crops when banded near to the seed or drilled in with the seed because this can be toxic to seedlings. Broadcast and incorporated applications should be at least twice the drill-in rates to be equally effective.

Normally potassium (potash) sulphur and micronutrients are not required by most crops. When soil test levels of potassium (K) are less than 300 lb/ac, application of potash fertilizer should be considered. When soil test levels of sulphur are less than 10 lb/ac, sulphur fertilizer applications could be considered. Normally, however, there is enough sulphur in irrigation water to meet crop requirements. Approximately 30 lb/ac of sulphur is added to soil with each 30 cm (12 inches) of irrigation water.

Response to micronutrient fertilizers is uncommon for most irrigated crops grown on most soils. The only exception to this is irrigated field beans, which occasionally will respond to applications of zinc. Deficiencies occur with dry beans when soils are wet and cold in spring. The micronutrient content of most soils in Alberta is sufficient to meet crop requirements.

For more detailed fertilizer information, refer to: *Alberta Fertilizer Guide*, Agdex 541-1; *Applying Nitrogen Fertilizers Effectively*, Agdex 542-7; *Phosphate Fertilizer Application in Crop Protection*, Agdex 542-3; *Micronutrient Requirements of Crops in Alberta*, Agdex 531-1; *Inoculation of Legume Crops*, Agdex 100/23-1; *Irrigation Management* - Various Crops, Agdex 561-4 to 561-17.

Disease, seed treatment

Rye and flax seed should be treated to control seedling blight and canola seed to control flea beetles, seedling blight and the seed borne phase of blackleg.

Cereal smuts can be controlled with seed treatment fungicides. See Alberta Agriculture publication *Seed Treatment of Cereal and Oilseed Crops* (Agdex 100/632).

Pea, bean, canola, sunflower and lentil crops grown under irrigation are highly sensitive to sclerotinia white mold. Proper water management, crop rotations and the use of appropriate fungicides will result in higher yields.

Safflower should not be seeded without a seed treatment. Untreated seed will usually have poor emergence.

Good seed

Costs of crop protection are becoming extremely high - land use, machinery, fertilizers, chemicals, labor, etc. In relation to this total, the cost of **good seed**, a most important production factor, is very small.

The only way to be absolutely sure of obtaining a particular variety is by the use of **pedigreed seed**.

The certificate of analysis of each seed lot will indicate details of purity relative to other crop kinds and weed seeds.

Copies of this and related publications may be obtained from the Print Media Branch, Alberta Agriculture, 7000 - 113 Street, Edmonton T6H 5T6 or Alberta Agriculture's District Offices.

Type	Yield Potential	Varieties	Seeding Rates	General Fertilizer Recommendations N (lb/ac)	P (lb of P_2O_5/ac)	Crop Water Requirements[4] In.	(mm)
Wheat							
Spring	85 bu/ac	Katepwa, Neepawa	90 lb/ac	35 - 110	20 - 50	18	(460)
Durum	80 bu/ac	Medora, Sceptre	105 lb/ac	35 - 110	20 - 50	18	(460)
Soft	110 bu/ac	Fielder/Owens	110 - 160 lb/ac	35 - 130	20 - 50	19	(480)
Winter	65 bu/ac	Norstar	70 lb/ac	35 - 80 (spring applied)	20 - 50 (fall applied)	15	(380)
3M	125 bu/ac	HY320	120 lb/ac	35 - 130	20 - 50	19	(480)
Barley							
Malt	95 bu/ac	Harrington, Klages	90 lb/ac	35 - 110	35 - 50	17	(430)
Feed	130 bu/ac	Galt, Samson, Duke	90 lb/ac	45 - 130	20 - 50	18	(460)
Silage	—	Galt, Samson, Duke	90 lb/ac	50 - 130	20 - 50	15	(380)
Oats							
Grain	135 bu/ac	Dumont, Calibre	85 lb/ac	35 - 80	20 - 50	17	(430)
Silage	—	Foothills	85 lb/ac	35 - 80	20 - 50	16	(410)
Fall Rye	75 bu/ac	Musketeer	85 lb/ac	30 - 70	20 - 50	15	(380)
Triticale							
Spring	—	Wapiti, Carman	100 lb/ac	35 - 90	20 - 50	18	(460)
Winter	110 bu/ac	O.A.C. Wintri (silage only) O.A.C. Decade O.A.C. Trillium	100 lb/ac	35 - 90	20 - 50	15	(380)
Annual Cereals for Pasture		Spring Seeded Winter Wheat	80 lb/ac	35 - 80	20 - 50	15	(380)
Canola							
Argentine	65 bu/ac	Westar, Global, Topaz	6 - 9 lb/ac	35 - 140	20 - 50	19	(480)
Mustard							
Yellow	2700 lb/ac	Gisilba, Kirby	7 - 10 lb/ac	35 - 110	20 - 50	19	(480)
Brown	2700 lb/ac	Commercial	4 - 6 lb/ac				
Oriental	2700 lb/ac	Cutlass, Domo	4 - 6 lb/ac	35 - 110	20 - 50		
Flax	50 bu/ac	Dufferin McGregor Norlin	30 - 40 lb/ac	20 - 100	15 - 40	16	(410)
Sunflower							
Oilseed	2500 lb/ac	Sigco 411	25 - 27,000 plants/ac	70 - 135	70 - 135	20	(510)
Confection	22-2500 lb/ac	Dahlgren 131, 760	20-22,000 plants/ac	70 - 135	20 - 60	20	(510)
Potatoes							
Early	—	Norland	Seed pieces 1-2 oz 30-36 in spacing between rows, 9-12 in spacing within rows	90 - 170	50 - 150	22	(560)
Processing	—	Norchip, Netted Gem					
Storage	20 t/ac	Netted Gem					
Sugarbeets	25 t/ac	Use variety supplied by Contracting Co.	1.5 lb/ac; 6 in. between plants; 22 in. between rows	50 - 120	30 - 65	22	(560)
Safflower[3]							
Birdseed	3200 lb/ac	Saffire	26 lb/ac	35 - 90	25 - 50	Partial Irrigation only	

Type	Yield Potential	Varieties	Seeding Rates	General Fertilizer Recommendations N (lb/ac)	P (lb of P_2O_5/ac)	Crop Water Requirements[4] in.	(mm)
Corn							
Sweet		Early King, Butter Vee	15,000 - 20,000 plants/acre	70 - 120	35 - 50	17	(430)
Canning		Mellow Gold, NK75, Yukon, Reliance	15,000 - 20,000 plants/acre	70 - 120	35 - 50	17	(430)
Silage		Pioneer 3957, Hyland, HL 2260	30,000 - 33,000 plants/acre	80 - 150	45 - 60	20	(510)
Grain		Pioneer 3995 (See Corn Hybrid Recommendation List - 1989 for full Recommendations)	23,000 - 25,000 plants/acre	80 - 150	45 - 60	20	(510)
Peas							
Canning		Early Sweet II, Anoka, Nugget Perfection 146	150 - 250 lb/ac			15	(380)
Freezer		Freezer 69, Venus Scout Dark Skin Perfection	150 - 250 lb/ac	for all types 0 - 40 and proper seed inoculation with rhizobia leguminosarum[4]	30 - 40 for all types	15	(380)
Field (dry)	3500 lb/ac	Tipu	175 lb/ac			16	(410)
		Express	190 lb/ac				
		Century	190 lb/ac				
		Trapper	135 lb/ac				
		Victoria	150 lb/ac				
		Other unregistered types available.					
Silage		Trapper	70 - 100 lb/ac			16	(410)
		Cereal	40 - 60 lb/ac				
Seed	3500 lb/ac	Use varieties supplied by Contracting Co.	Optimum: 12 seeds/ yd. of row			16	(410)
Grass							
Brome grass		Baylor, Magna, Regar Carlton, Manchar					
Kentucky blue grass		Troy					
Orchard grass		Chinook, Kay		For Hay:			
Slender wheatgrass		Revenue	Refer to varieties of Hay and Pasture	90 - 150			
Tall fescue		Alta	Crops for Alberta		0 - 60	23	(590)
Tall wheatgrass		Orbit	Agdex 120/32	For Pasture: 100 - 200	for all types	for all types	
Timothy		Bounty,					
Reed canary grass		Champ, Climax, Castor, Frontier					
Pubescent wheatgrass		Greenleaf					
with 20 to 40% legume				45 - 90	30 - 60		
with 40 to 60% legume				10 - 35	30 - 60		
* *Should not be grown adjacent to irrigation canals or drain ditches.*							
Canaryseed		Commercial types, Alden, Keet, Elias	35 - 50 lb/ac	30 - 60	20 - 50	18	(460)
Sainfoin		Melrose, Nova	35 lb/ac	0 - 30 and	50 - 80 innoculate with "F inoculate" (Nitragin Co.)[3]	20	(510)

Type	Yield Potential	Varieties	Seeding Rates	General Fertilizer Recommendations N (lb/ac)	P (lb of P_2O_5/ac)	Crop Water Requirements[4] In.	(mm)
Alfalfa							
Forage	5 - 6 ton/ac	Anchor, Pacer, DK 120, Beaver, Pioneer 524, Algonquin, Trumpet, Barrier	10 - 12 lb/ac	0 - 30 and inoculate with rhizobia melitoti[2]	30 - 50 (annually) or 100 - 150 (when establishing stand)	27	(680)
Seed		Use varieties where market demand is high	2 - 4 lb/ac			20	(510)
Dry Beans[3]							
Pinto	2200 lb/ac	UI 111 Fiesta, D81123		0 - 40 and inoculate seed properly with rhizobia phaseoli[2] (D Culture) - inoculated dry beans will provide up to 35% of N requirements - some varieties (e.g. Red Mexican) are less responsive to inoculation, and may respond to N application of 70 - 100 lb/ac. - increased N applications may increase risk of sclerotinia disease.	30 - 40 zinc application may be necessary when soil test is low or P_2O_5 application is high	15	(380)
Red Mexican	2200 lb/ac	UI 36 NW63, D79144, Garnet	70 lb/ac				
Pink Bean	2200 lb/ac	Viva Harold Victor					
Great Northern	2200 lb/ac	UI 1140					
Navy Bean	1900 lb/ac	Seafarer, Pulsar	38 - 50 lb/ac				
Fababeans	2500 - 4000 lb/ac	Akerperle, Diana Outlook, Aladin Pegasus, Encore, Herz Freya	175 - 200 lb/ac optimum 6 - 7 seeds/yd of row	0 - 40 and inoculate with rhizobia leguminosarum[2] (Q culture)	30 - 60	24	(610)
Soybeans	35 bu/ac	Maple, Amber, Maple Ridge, KG 20, Baron	90 lb/ac (for solid seeding)	10 - 30 and inoculate with rhizobia japonicum[2]	20 - 40	19	(480)
Lentils[3]	12 - 2000	Eston Laird Commercial[1]	35 lb/ac 75 lb/ac 60 lb/ac	10 - 20 and inoculate with rhizobia leguminosarum[2] (C culture)	20 - 40	17 Partial irrigation	(430)

[1] Unlicensed commercially contracted varieties.
[2] Fertilizer application rates are based on inoculation with specific rhizobia bacteria to obtain nitrogen fixation. An appropriate sticker should be used to obtain proper seed/inoculant contract. Soils with residual N levels exceeding 40-50 lb/ac may not respond to inoculation.
[3] These crops can be adversely affected by intensive irrigation. Overwatering of these crops can lead to increased disease pressure and seriously delayed maturity.
[4] Irrigation requirement = crop water requirement - (Average growing season precipitation and stored soil moisture).

Note: To simplify information trade names of some products have been used. No endorsement of these products is intended, nor is any criticism implied of similar products that are not mentioned.

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